

REMARKS

The applicant respectfully requests reconsideration in view of the amendment and the following remarks. Support for amended claim 1 can be found in the original claims 2, 5, 6, 8, 12, 17, 20 and 21. The applicant has incorporated these features into claim 1. The optional heating step is disclosed at page 19, lines 36-38. Support for newly added claims 49 and 50 can be found in the specification at page 19, lines 36-38 which states that step B) is not required. Support for newly added claim 51 can be found in the specification at page 18 third full paragraph, and in original claims 1, 2, 5, 6, 8, 17, 20 and 21. Support for newly added claim 52 can be found in the specification at page 18 fourth full paragraph and in original claims 1, 2, 5, 6, 8, 17, 20 and 21. Support for newly added claim 53 can be found in the specification at page 21 fourth full paragraph, and in original claims 1, 2, 5, 6, 8, 17, 20 and 21. Support for newly added claims 54-64 can be found in the specification at page 21, lines 9-18. Support for newly added claims 65-70 can be found in the specification at page 20, lines 1-9. No new matter has been added.

The application previously contained 47 claims. The applicant has cancelled 22 claims (claims 2, 5, 6, 8, 9, 10, 12, 13, 17, 20, 21, 29-32 and 37-43). The applicant has added 22 claims (claims 49-70). The application contains four independent claims 1, 51, 52 and 53. **The applicant authorizes the USPTO to charge for the extra independent claim over 3.**

The title was objected to. Claims 1-3, 12, 14, 15, 24, and 25 remain rejected under 35 U.S.C. 102(b) as being anticipated by WO 2002/046278; equivalent US 2004/0058216 (Pineri). Claims 4, 5, 7, 17-19, 26, 29, 30, 34, 35, 39, 44, and 45 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and further in view of US 6,300,000 (Cavalca et al.). Claim 6 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri in view of Cavalca et al. and further in view of US 4,012,303 (D'Agostino et al.). Claims 8-11 and 13 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and further in view of US 5,525,436 (Savinell et al.). Claims 16-18, 20, 21, and 23 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and further in view of US 6,399,234 (Bonk et al.). Claim 22 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri, and further in view of Bonk et al. and JP 2001-196082 (Okamoto et al.). Claims 28, 31, and 33 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and Cavalca et al. and further in view of Savinell et al. Claims 36-38, 40-41, and 43 remain rejected under 35 U.S.C. 103(a) as being unpatentable over

Pineri and Cavalca et al. and further in view of Bonk et al. Claim 42 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and Cavalca et al. and further in view of Bonk et al. and Okamoto et al. Claims 46 and 47 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and Cavalca et al. and further in view of US 5,464,700 (Steck et al.). Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri, and further in view of US 6042959 (Debe et al.). The applicant respectfully traverses these rejections.

Objection to the Specification

Applicant has amended the title. The applicant has amended the title as suggested by the Examiner. For the above reasons, this objection should be withdrawn.

Rejections under 35 U.S.C. 102(b)

Claims 1-3, 12, 14, 15, 24, and 25 remain rejected under 35 U.S.C. 102(b) as being anticipated by WO 2002/046278; equivalent US 2004/0058216 (Pineri). The applicant has incorporated claims 5, 6, 8, 12, 17, 20 and 21 into the independent claims. Since these claims were not rejected over Pineri, this rejection should be withdrawn.

Rejections under 35 U.S.C. 103(a)

Claims 4, 5, 7, 17-19, 26, 29, 30, 34, 35, 39, 44, and 45 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and further in view of Cavalca. The applicant has incorporated claims 6, 8, 12, 20 and 21 into the independent claims. Since these claims were not rejected over Pineri in view of Cavalca, this rejection should be withdrawn.

Claim 6 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri in view of Cavalca and further in view of D'Agostino. Claim 6 has been cancelled. Therefore, this rejection should be withdrawn.

Claims 8-11 and 13 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and further in view of Savinell. Claims 8-11 have been cancelled. Claim 13 has been

amended. The applicant has incorporated claims 6, 8, 12, 20 and 21 into the independent claims. Since these claims were not rejected over Pineri in view Savinell, this rejection should be withdrawn.

Claims 16-18, 20, 21, and 23 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and further in view of Bonk. The applicant has incorporated claims 6, 8, and 12 into the independent claims. Since these claims were not rejected over Pineri this rejection should be withdrawn.

Claim 22 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri, and further in view of Bonk et al. and JP 2001-196082 (Okamoto et al.). The applicant has incorporated claims 6, 8 and 12 into the independent claims. Since these claims were not rejected over Pineri in view Bonk, this rejection should be withdrawn.

Claims 28, 31, and 33 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and Cavalca et al. and further in view of Savinell et al. The applicant has incorporated claims 6, 8, 12, 20 and 21 into the independent claims. Since these claims were not rejected over Pineri in view of Cavalca, this rejection should be withdrawn.

Claims 36-38, 40-41, and 43 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and Cavalca et al. and further in view of Bonk et al. The applicant has incorporated claims 6, 8, 12, 20 and 21 into the independent claims. Since these claims were not rejected over Pineri in view of Cavalca, this rejection should be withdrawn.

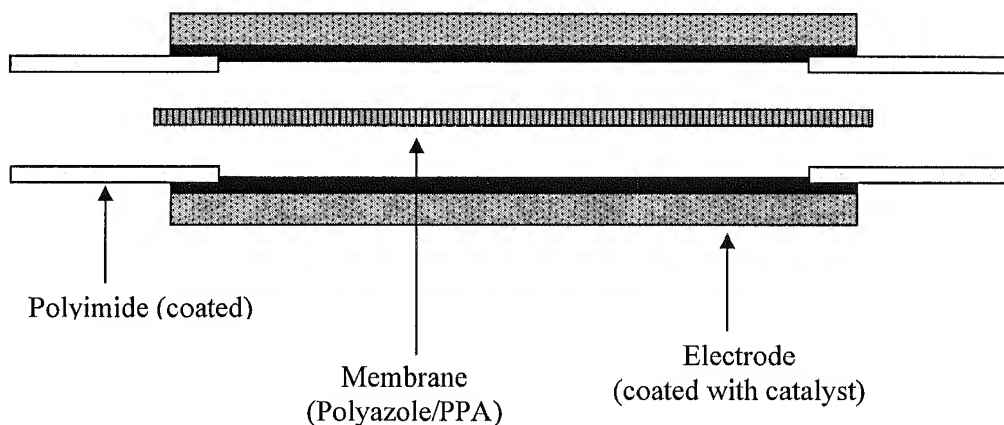
Claim 42 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and Cavalca et al. and further in view of Bonk et al. and Okamoto et al. The applicant has cancelled claim 42. Therefore, this rejection should be withdrawn.

Claims 46 and 47 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri and Cavalca et al. and further in view of Steck. The applicant has incorporated claims 6, 8, 12, 20 and 21 into the independent claims. Since these claims were not rejected over Pineri in view of Cavalca, this rejection should be withdrawn.

Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pineri, and further in view of Debe. The applicant has incorporated claims 6, 8, 12, 20 and 21 into the independent claims. Since these claims were not rejected over Pineri, this rejection should be withdrawn.

The Applicant's Invention

The instant invention is directed to a membrane electrode assembly ("MEA") design in which polyimide serves as gasket and is provided as a film placed between the edge of the electrode and the membrane. The individual layers are placed in the desired order and laminated thereafter. The polyimide layer extents over the membrane (see below)



The polyimide overlap's and forms a frame between the electrode and the membrane.

The instant invention is directed to a membrane electrode assembly comprising two electrochemically active electrodes separated by a polymer electrolyte membrane, characterized in that there is a polyimide layer on each of the two surfaces of the polymer electrolyte membrane that are in contact with the electrodes.

Pineri discloses a MEA design in which the membrane has a surface coating. The surface coating (see Figure 1, #1 and #3) is proton conductive because it's a sulfonated polyimide. In contrast the applicant's polyimide is not proton conductive (it's not sulfonated), however, the applicant does not exclude sulfonated materials from its invention. The applicant included the

coating on the instant polyimide, because such coating is non-conductive (like a barrier layer for conductivity). In addition, the applicant just has a frame and not a full coverage of the surface. Pineri uses the sulfonated polyimide in the conductive are of the MEA whereas the applicant uses it as gasket material. Therefore, Pineri does neither disclose the instant (amended) set of claims nor render them obvious. For the above reasons, these rejections should be withdrawn.

The other references were cited against individual subclaims but not against claim 1. Hence they are only relevant for such claims but not for claim 1.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

The applicant authorizes the USPTO to charge for the extra independent claim over
3. Applicant believes no additional fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 15588-00020-US from which the undersigned is authorized to draw.

Dated: September 7, 2010

Respectfully submitted,

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